**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 5**
77 West Jackson Boulevard
Chicago, Illinois 60604

**DATE:** DEC 18 2013

**SUBJECT:** INSPECTION REPORT – Tech Nickel, Inc., Benton Harbor, MI

**FROM:** Katie Owens, Environmental Engineer

**THRU:** Nathan A. Frank, Chief
Air Enforcement and Compliance Assurance Section, (IL/IN)

**TO:** File

**Date of Inspection:** August 12, 2013

**Attendees:** Katie Owens, Environmental Engineer, U.S. EPA
Roshni Brahmbhatt, Environmental Engineer, U.S. EPA
Dennis Dunlap, Environmental Quality Specialist, MDEQ
Louie Vogl, Operations Manager, Tech Nickel, Inc.

**Purpose of Inspection:** The purpose of the inspection was to investigate compliance of Tech Nickel Inc. with the National Emission Standards for Hazardous Air Pollutants for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks at 40 C.F.R. Part 63, Subpart N and the National Emission Standards for Hazardous Air Pollutants for Plating and Polishing Operations at 40 C.F.R. Part 63, Subpart WWWWWW.

**Company Description and Background:**

Location: 1200 South Crystal Avenue, Benton Harbor, Michigan 49022

Primary Contact: Louie Vogl, Operations Manager, Tech Nickel, Inc.

Tech Nickel performs hard chromium electroplating, electroless nickel plating and salt bath nitriding.

**Opening Discussion and Process Overview**

Ms. Brahmbhatt and I arrived at Tech Nickel, Inc. (Tech Nickel) at 10:05 am EST. We met Dennis Dunlap, MDEQ Environmental Quality Specialist, in the parking lot and entered the building together. Ms. Brahmbhatt and I presented our credentials to the receptionist, and explained that we were at Tech Nickel for an unannounced Clean Air Act (CAA) inspection to investigate its compliance. Ms. Brahmbhatt and I asked her to call the Environmental Manager. The receptionist called Louie Vogl, Operations Manager, who greeted us in reception. Ms. Brahmbhatt and I introduced ourselves and asked if there was an available room to further discuss the purpose of our visit. Mr. Vogl escorted us to his office.

Ms. Brahmbhatt and I began by asking Mr. Vogl general questions about Tech Nickel. We asked Mr. Vogl the date Tech Nickel started at its present location. Mr. Vogl replied that Tech Nickel relocated to its current location in 1995 from Buchanan, Michigan. Mr. Vogl stated that he owns Tech Nickel and has 25 employees.

Ms. Brahmbhatt and I asked Mr. Vogl to describe the operations at Tech Nickel. Mr. Vogl stated that Tech Nickel has three shifts per day, working 5 days per week. Mr. Vogl stated that Tech Nickel has a single plating shift, from 7 – 3:30 pm, 40 hours per week.

Ms. Brahmbhatt and I asked Mr. Vogl to describe the types of plating performed at Tech Nickel. Mr. Vogl stated that Tech Nickel has one electroless nickel tank, two hexavalent hard chromium plating tanks and a salt bath nitrating line. Ms. Brahmbhatt and I asked Mr. Vogl to explain how a salt bath nitrating line works. Mr. Vogl stated that the salt bath nitrating is also known as ferritic nitriding. Mr. Vogl stated that the process has a molten salt bath where parts are deposited. Next a thermal reaction occurs between the molten salt and ferrous metal, this reaction produces a hard, uniform surface. Mr. Vogl stated that sometimes he processes aluminum and brass in the salt bath nitrating line.

Ms. Brahmbhatt and I asked Mr. Vogl to describe the controls Tech Nickel employs on each process, where any exist. Mr. Vogl stated that both hard chromium tanks are controlled with a single Hex Master Fume Scrubber in addition to using wetting agent. Ms. Brahmbhatt and I asked Mr. Vogl how often Tech Nickel performs surface tension testing. Mr. Vogl stated he was unsure if Tech Nickel does any surface tension testing. Mr. Vogl stated that Tech Nickel does record the pressure drops daily. Mr. Vogl stated that Tech Nickel has a permit for its hydrochloric acid scrubber, nickel scrubber and chromium scrubber. Mr. Vogl stated that the chromium scrubber is a 3-stage packed bed scrubber. Mr. Vogl stated that electroless nickel tank has a chevron blade scrubber.

Mr. Vogl stated that Tech Nickel was previously fined for its vapor degreaser and that it was removed 2 – 3 years ago. Mr. Vogl stated that Jody Mastroeni, of Cirrus Environmental Services, LLC in Grand Rapids, manages Tech Nickels environmental records.

Ms. Brahmbhatt asked Mr. Vogl what actions Tech Nickel takes when it exceeds its permitted pressure drop range. Mr. Vogl stated that Tech Nickel changes the scrubber pads when it gets close to 2.7". Ms. Brahmbhatt and I asked Mr. Vogl to provide the date of the last stack test. Mr. Vogl stated the last stack test was performed in 1998 and performs quarterly inspections. Mr. Vogl stated that the scrubber is flushed daily. Ms. Brahmbhatt and I asked if Mr. Vogl keeps a wetting agent additions log. Mr. Vogl stated that Tech Nickel does not record surfactant additions and that additions are made based on observation of conditions in the plating tanks.

Ms. Brahmbhatt and I asked Mr. Vogl if operations have remained constant in the last 5 years. Mr. Vogl stated that there has been no change in production levels in the last 5 years. Ms. Brahmbhatt and I asked Mr. Vogl to describe the industries Tech Nickel serves. Mr. Vogl stated that Tech Nickel plates for heavy industry (e.g., Caterpillar), and plates: hydraulic cylinders, bakery and automation equipment. In total Tech Nickel has 350 customers and can plate 300 – 400 square inches per day.

Ms. Brahmbhatt and I asked Mr. Vogl if Tech Nickel has ever drained either chromium tank. Mr. Vogl replied that both chromium tanks were completely drained 3 years ago.

**Facility Tour**

Following the end of the opening discussion, Ms. Brahmbhatt and I departed Mr. Vogl's office and entered the warehouse at 10:35 am EST. Mr. Vogl escorted us through the receiving area to the polishing operations area.

Ms. Brahmbhatt and I first observed two hot alkaline cleaner tanks, both were covered. I asked Mr. Vogl if I could photograph the tanks. Mr. Vogl consented and removed the Styrofoam covering (Photo 1 and 2).

Directly across from the alkaline cleaner tanks, Ms. Brahmbhatt and I observed the polishing area and parts bake oven. Mr. Vogl stated that the parts bake oven is a low temperature bake for nickel plated parts.

Next, we walked to the vibe polish area. Ms. Brahmbhatt and I asked if any controls were used on this process. Mr. Vogl stated no controls were used on the vibe polish process. Mr. Vogl led us to observe the grit blasting machine. Mr. Vogl stated that this was controlled with a self-cleaning cartridge filter. Following, we observed the Suspa wash and polish areas. Mr. Vogl explained that pill-sized porcelain nuggets were used to help smooth the raw materials prior to plating.

Continuing the tour, we walked into the plating area at Tech Nickel starting with the Salt Bath Nitride (SBN) system. Mr. Vogl escorted us behind the SBN line. Immediately upon walking near the SBN line, I noted a very strong ammonia odor. I left immediately because the odor was too strong to stay in the area. Ms. Brahmbhatt and I requested that we start with the chromium plating tanks.

Mr. Vogl escorted us to Tech Nickel's chromium plating line. Upon entering the plating line Mr.

Vogl pointed out the hydrochloric acid tank. Ms. Brahmbhatt and I observed the hydrochloric acid tank which was covered with a foam-like board, the size of the tank (Photo 3). Next we walked down the plating line to the chromium tanks. Ms. Brahmbhatt and I asked Mr. Vogl if the chrome plating tanks had specific names. Mr. Vogl stated that the chrome plating line consisted of three tanks: 'J,' 'K,' and 'L' from left to right. Mr. Vogl stated that 'J' is an evaporation tank where Tech Nickel deposits its waste water to evaporate prior to sending to the scrubber. Mr. Vogl stated that 'K' is the small hexavalent hard chromium tank used for small pieces which are plated for approximately 30 seconds (Photo 4). Mr. Vogl stated that 'L' is the large hexavalent hard chromium tank (Photo 5). Ms. Brahmbhatt asked for the location of the Magnehelic gages on the chromium line. Mr. Vogl pointed out the gages for the chromium tanks which were situated between tanks 'K' and 'L' and were approximately 10 feet off the ground (Photo 6).

We continued along the plating line, stopping at the nickel tanks. First, Ms. Brahmbhatt and I viewed the empty electroless nickel tank. Mr. Vogl pointed out the operational electroless nickel tank directly next to the empty nickel tank (Photo 7). Mr. Vogl also pointed out the hot water rinse tank for the electroless nickel line.

Mr. Vogl asked if we wished to see the scrubbers. Ms. Brahmbhatt and I stated that we would like to observe them. Mr. Vogl led us past the chromium line and outside the building to view the scrubbers. Mr. Vogl stated that Tech Nickel has three scrubbers, one each for the hydrochloric acid, nickel and chrome operations. Ms. Brahmbhatt and I observed the scrubbers to be in poor condition. We observed different types of tape wrapping most the intake tubes feeding into the scrubber (Photo 8 and 9).

Ms. Brahmbhatt and I reentered the building and requested to view Tech Nickel's records. Mr. Vogl escorted us to the Quality Laboratory, where Tech Nickel maintains its records. Ms. Brahmbhatt and I requested all of Tech Nickel's stack tests, its permit, notification reports, wetting agent addition log, surface tension testing records, inspection records, and operation and maintenance plan. Ms. Brahmbhatt and I reviewed one stack test, dated May 12, 1998, Tech Nickel's operation and maintenance plan, its 2012 quarterly inspection log for the composite mesh pad system, its initial notification report, notification of compliance status report, ongoing compliance status reports and notification of performance tests. Ms. Brahmbhatt and I found no permit, wetting agent addition log or surface tension testing records.

Ms. Brahmbhatt and I asked Mr. Vogl if he was aware of any surface tension testing records. Mr. Vogl stated that Tech Nickel tested surface tension approximately 15 years ago and was unsure if it used a stalagmometer or tensiometer. Ms. Brahmbhatt and I asked who we should contact if we needed additional technical information. Mr. Vogl stated that we could contact him and he would contact Ms. Mastroeni. We finished reviewing the records at 11:40 am EST.

Prior to returning to Mr. Vogl's office, Ms. Brahmbhatt and I asked if we could walk through the SBN line. Mr. Vogl escorted us onto the SBN line where we were able to view each step of the SBN process. Mr. Vogl led us back to his office when the walk through was completed.

**Closing Discussion**

Ms. Brahmbhatt and I returned with Mr. Vogl to his office. Ms. Brahmbhatt and I explained that we would write an inspection report following the inspection at Tech Nickel and that it would be available to him if he made a Freedom of Information Act Request to our office. Ms. Brahmbhatt and I also asked Mr. Vogl if he would like to claim any information we discussed during our visit as confidential. Mr. Vogl declined to make any information confidential.

Ms. Brahmbhatt and I thanked Mr. Vogl for his time and departed the facility at 11:50 am EST.

**Photos**


Photo 1: Tech Nickel's hot alkaline cleaner tanks.


Photo 2: A close up of the cover for Tech Nickel's hot alkaline cleaner tanks.

Photo 3: Tech Nickel's hydrochloric acid tank with covers.

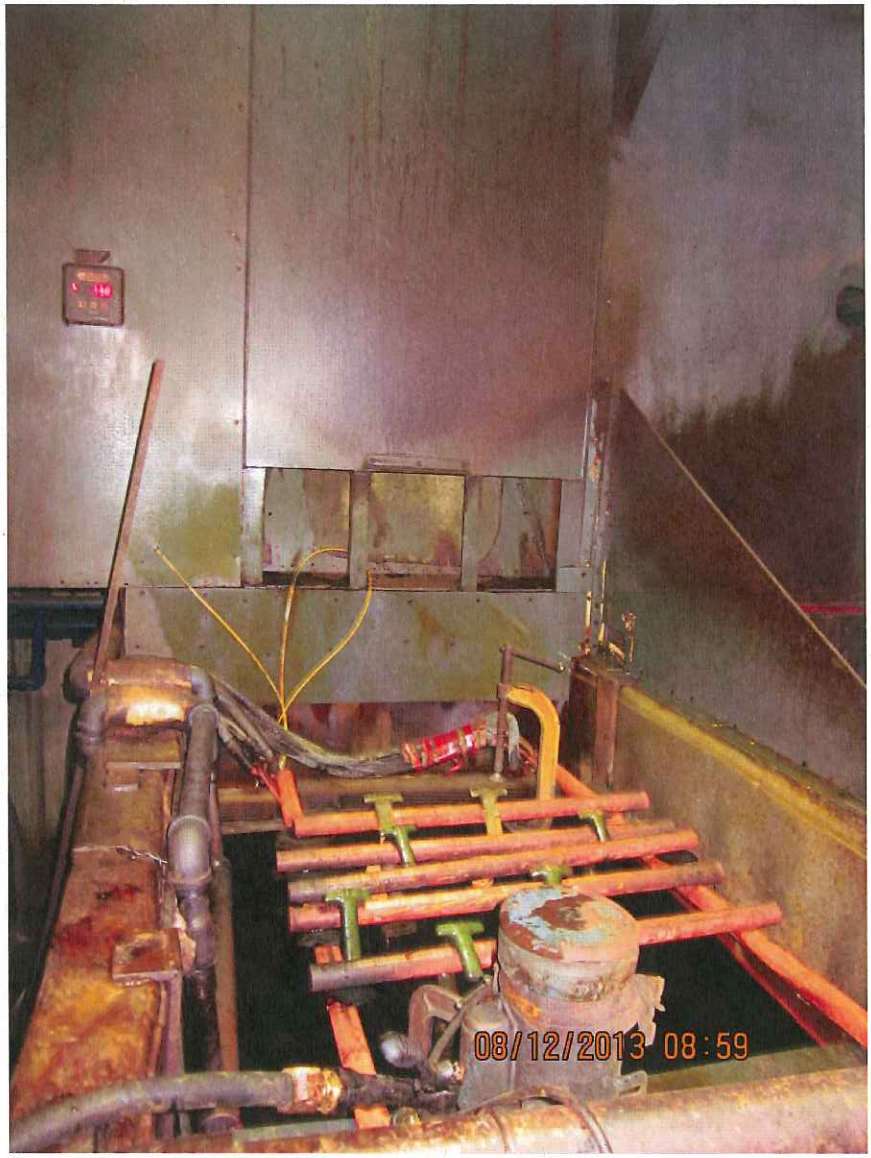

Photo 4: Tech Nickel's small chromium tank 'K.' Note the scrubber intake.


Photo 5: Tech Nickel's large chromium tank 'L.' Note the scrubber intake on the large chromium tank. The small chromium tank is in the foreground.


Photo 7: Tech Nickel's electroless nickel tank. Note the scrubber intake.

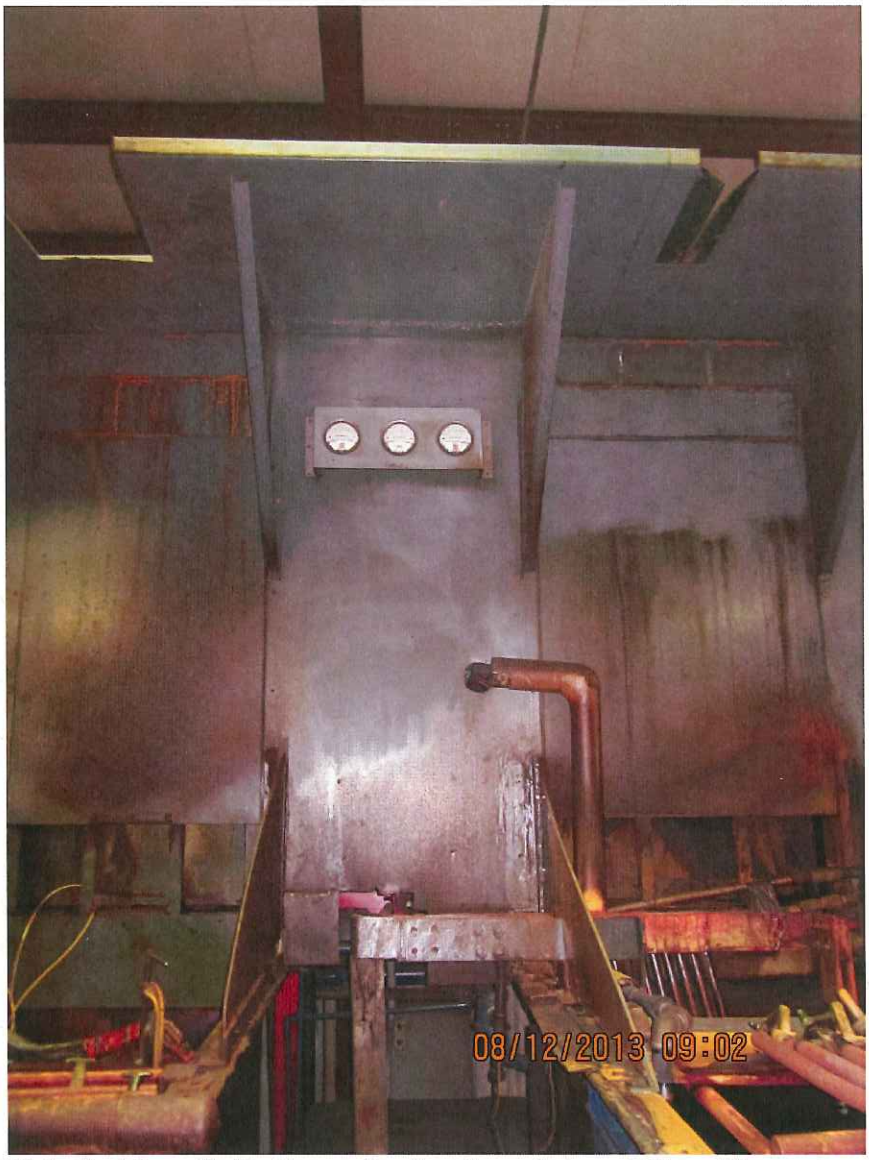


Photo 6: Tech Nickel's Magnehelic Gages for the chromium scrubber. The gages were approximately 10 feet from the ground.


Photo 8: One of Tech Nickel's scrubbers. Note the condition of the scrubber with exposed insulation and duct tape.


Photo 9: A close up of the condition of one of Tech Nickel's scrubbers. Note the c exposed insulation and duct tape.

Standard bcc:s: official file copy w/attachment (s)
originator's file copy w/attachment (s)
originating organization reading file w/attachment (s)

other bcc's:

Created: September 13, 2013

ARD:G:\Air Enforcement And Compliance Branch\IL and IN\KOwens\Grand Rapids, MI Inspections - Aug 2013\Tech Nickel Inc\TechNickel_IR_KO_09132013.docx